

FINAL REPORT

PRINCIPAL INVESTIGATOR: Arthur F. Kramer
phone: 217-244-1933
e-mail: akramer@s.psych.uiuc.edu

INSTITUTION: Beckman Institute, University of Illinois, Urbana,
Illinois.

PROJECT TITLE: Functional MR Studies of cognitive processing
(N00014-93-1398)

DATES OF GRANT: September 1, 1993 to August 28, 1996

NUMBER OF ONR SUPPORTED PAPERS AND PRESENTATIONS:

Papers published in referred journals: 3
Papers accepted for publication in referred journals: 4
Papers in non-referred publications: 2

TRAINEE DATA:

No. of Graduate students: 2 women, 1 male.
No of undergraduate students: 2 women, 2 males.

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SUMMARY:

The funds received from this Augmentation Award for Science and Engineering Research Training (AASERT) provided for the support of several graduate and undergraduate students at the University of Illinois. These students were involved in a number of studies (see list of published papers below) which entailed the development of paradigms and the conduct of experiments to examine the psychological and neurophysiological mechanisms which underlie different aspects of visual selective attention. Research skills which the students acquired during the course of training included behavioral experimentation, mathematical modeling of psychological and neurophysiological phenomena, the use of event-related brain potentials, and the collection of functional magnetic resonance data as subjects performed different attentional tasks.

Indeed, after a number of years of struggling with a failed magnet in the Beckman Institute at the University of Illinois we now have an agreement in place with a local hospital (Carle Clinic) to use their 1.5 Telsa GE Sigma on evenings and weekends to collect psychological data. The support that we received from ONR through the AASERT award was instrumental in providing the experience we needed to be able to take advantage of this

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opportunity.

Papers Published with Support from the ONR ASSERT Award

Theeuwes, J., Kramer, A.F. & Atchley, P. (in press). Visual marking of old objects. Psychonomic Bulletin and Review.

Atchley, P., Kramer, A.F., Andersen, G.J. & Theeuwes, J. (in press). Spatial cueing in a stereoscopic display: Evidence for a "depth-aware" attentional focus. Psychonomic Bulletin and Review.

Hahn, S. & Kramer, A.F. (in press). Further evidence for the division of attention among non-contiguous locations. Visual Cognition.

Theeuwes, J., Atchley, P. & Kramer, A.F. (in press). Attentional control within three-dimensional space. Journal of Experimental Psychology: Human Perception and Performance.

Kramer, A.F., Weber, T. & Watson, S. (1997). Object-based attentional selection: Grouped-arrays or spatially-invariant representations? Journal of Experimental Psychology: General, 126, 3-13.

Martin-Emerson, R. & Kramer, A.F. (1997). Offset transients modulate attentional capture by sudden-onsets. Perception and Psychophysics, 59, 739-751.

Weber, T., Kramer, A.F., Miller, G. (1997). Selective processing of superimposed objects: An electrophysiological analysis of object-based attentional selection. Biological Psychology, 45, 159-182.

Cohen, N., Banich, M., Kramer, A., Morris, D., Lauterbur, P., Potter, C., Cao, Y. & Levin, D. (1993). Assessing test-retest reliability of functional MRI data. Program of the Society of Magnetic Resonance in Medicine, 12th Annual Meeting. New York, New York.

Potter, C., Banich M., Cohen, N., Kramer, A., Lauterbur, P. & Morris, D. (1993). NEUROVISION: A software tool for functional neuroimaging analysis. Program of the Society of Magnetic Resonance in Medicine, Workshop on Functional MRI of the Brain. Arlington, VA.